



Hysteroscopic adhesiolysis using the “ploughing technique”

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Intrauterine adhesion (IUA) develops as a result of trauma to the basal layer of the endometrium. Whilst it is generally accepted that hysteroscopic adhesiolysis is the gold standard in the treatment of this condition (1) and that reformation of IUAs is common, ranging from 20% to 63% especially in cases with severe disease (2), there is a lack of consensus on the optimal surgical techniques used to remove the adhesions.

In a recent issue of the journal, Zhao *et al.* (3) from third Xiangya Hospital of Central South University, China reported on the findings of a retrospective cohort study which compared the safety (surgical complications), feasibility (surgical technique replacement rate), and postoperative efficacy (reduction of AFS score, pregnancy, and live birth rate) of three different of hysteroscopic surgical techniques, including ploughing group (PG) (cold scissors with ploughing technique), the traditional group (TG) (cold scissors without ploughing technique), and the electrosurgical group (EG) (using a resectoscope with L-hook electrode without ploughing technique).

The rationale behind introducing the ploughing technique is the recognition that adhesions within the uterine cavity exist in several forms. Some are flimsy, isolated, causing opposing surfaces to adhere to each other but easy to divide whereas others are dense and extensive resulting in the formation of fibrosis covering a large area of the surface of the uterine cavity, replacing the normal endometrial tissue, leading to a significant contraction of the uterine cavity. In the latter situation, sometimes, the entire layer of the endometrium has been damaged

down to basal layer and is replaced by fibrosis with the result that the prospect of regeneration, regardless of the surgical techniques used, is very remote. At other time, buried beneath the patches of fibrosis are islands of normal endometrial tissue with regenerative ability which, if exposed, can migrate to adjacent areas to restore epithelization. The ploughing technique is aimed to remove the fibrotic tissue, expose any underlying healthy basal endometrial tissue capable of regeneration but without causing further damage.

The concept of “ploughing” is not entirely new. Protopapas *et al.* (4) reported the “myometrial scoring” technique for the management of severe Asherman’s syndrome as early as 1998. It was performed via a standard 26 Fr continuous flow resectoscope fitted with a Collins knife electrode, scoring involved making six to eight, 4-mm-deep longitudinal incisions into the myometrium extending from the uterine fundus to the isthmus. The longitudinal cuts into the myometrium not only increased the internal dimensions of the uterine cavity but also exposes the basal regenerative layer, should there be any. The rationale behind “Myometrial scoring” technique is not dissimilar to that of the “ploughing” technique. The difference is that “scoring” technique uses electrical energy (hot wire) where the “ploughing” technique employs scissors (cold steel).

So, what did the study of Zhao *et al.* (3) show? The cohort study consisted of three groups; the fibrotic tissue involved in the lateral uterine wall (marginal adhesions) was treated by “ploughing” technique in one group (PG) but not in the other two groups (TG & EG). As expected, it

was found that the PG group had better outcome compared with the other two groups, suggesting that “ploughing” technique is of benefit.

There is a note of caution. The “ploughing technique” appeared safe as reported but it must not be taken to mean that it is completely safe. The dissection could damage the remaining, functioning endometrial tissue buried within the fibrotic tissue. “Ploughing” too deep can also lead to bleeding from the myometrial tissue which can in turn result in more scarring and fibrosis. An experienced surgeon should have learnt how to distinguish the pink healthy myometrial tissue from the white, often avascular fibrotic tissue, when to continue with the dissection and when to stop. Routine ultrasound guidance in women with severe IU adhesions should help to make the operation safer, reducing the risk of false passage formation and perforation of the uterus.

What next about “ploughing technique”? The finding in the study provided preliminary evidence of benefits of “ploughing technique” but given that it is a retrospective study, it ought to be confirmed by a prospectively planned, adequately powered, randomized control trial (RCT). The results generated from this study should form the basis of a sample size calculation for the RCT. On the other hand, it remains to be seen whether “ploughing technique” using cold steel or hot wire produces similar or different results, which could only be resolved by yet another RCT.

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Footnote

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